give the impression of an earthquake, so that several times the people of these towns have rushed out into the streets. On July 14 I observed in Acireale that the large undulations of the air-blows which were propagated beyond 333 m. per second, like sonorous vibrations, often arrived unaccompanied by noise, and strongly shook doors and windows.

These reports, these air-blows, and the abundant ejection of incandescent lava still further prove that in No. 2 crater there was pasty lava which swelled and burst, as we deduced from its effect on the white vapours.

This period of great activity, in which the thick shower of lava fragments projected from the different craters to great heights, and spread over an area of 500m. radius, reached its maximum about midnight, and then gently declined a little. In the same manner the eruption continued during the following days with great energy, but with a very gradual diminution in its intensity, interrupted more or less by strong spasms. The lava continued to advance, but diminished in velocity, while it extended in breadth and depth. The eastern branch very soon stopped, and also the western one, after having continued its destruction of very fertile ground. This having crossed the road known as the St. Leo, finally stopped, whilst the new lava that continues to issue forms new ramifications and flows, which pass quite close to the earlier ones, and now actually are in contact with them, increasing the area covered. In the first paroxysm of the eruption the lava issued in great gushes all along the rift. Soon at the upper part commenced the dejection cones, and lower down the fire vents, and the lava flowed in abundance, and with explosions also in points where now are the craters, as, for example, Nos. 3 and 4. Later, when the explosive force had diminished, the lava issued without explosions, almost silently from different vents at the south end of the fissure on which are aligned the craters. These vents, therefore, have during the eruption varied in number and form. Some have assumed the function of dejection craters as occurred in Nos. 3 and 4, which gave passage to much lava as a current. Others have ceased to eject scoria, to send forth only torrents of lava, as, for example, the little mouth to the east of No. 4, the scoria rim of which exists only to the north, of about 20m. high, whilst the south rim has been swept away by the current. Some of the mouths have been refilled by the lava flows, and whilst some have become extinct new ones have been formed.

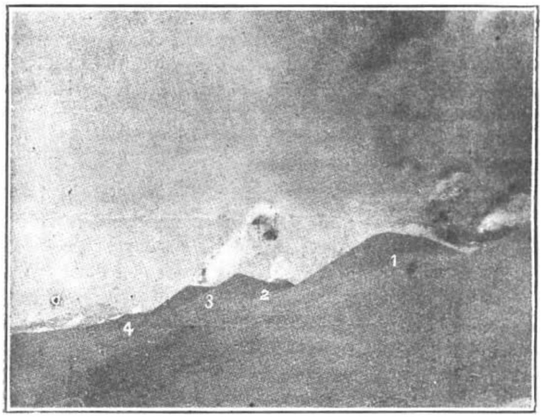

FIG. 8.—Taken by G. Platania on July 30 from the north-east of the craters, No. 4 is still very little, but in part hidden behind a prominence of the ground.

In the last week of July, crater No. 2 assumed, for some days, a new phase. Its explosions had become rare, long, and very grand, and the large mass of vapour, mixed with dust, brought back to my mind the eruption of Vulcano when we stood on the crater edge and watched and photographed the whole process, and stood our ground amidst showers of bombs and other projectiles (1888–90).[1] By this it lost the beautiful regular truncated cone form that it had at the beginning, and became irregular and broken-down towards the north, like No. 1.

At the commencement of August the eruption already seemed much diminished, craters No. 1 and 2 had ceased to eject stones little by little, gradually becoming blocked, and the enclosed lava was slowly cooling. In fact, on the recommencement of a period of renewed energy, the explosive force could no longer find an escape by them, so that on August 1 a new crater opened in a point higher up where the cleft to the west, which had only acted at the commencement of the eruption, joined another great rift on which the craters were formed. Then on August 9 occurred another violent eruptive spasm, which could not clear away the material that obstructed the craters, but opened a new way, always on the main cleft, between Nos. 1 and 2, and exactly at the north base of the last of these craters. Here a little funnel-shaped depression was formed which for a short time ejected enormous masses. This new crater, however, soon passed into the solfataric stage as Nos. 1, 2, and 3, and there remained in an energetic state of activity only the crater of August 11 and No. 4. That one which on August 21 measured in diameter only about 50 m., and had a height of about 60 m., later became elongated towards the S.S.W., and its grand and beautiful explosions, which I watched quite closely, in company with Mr. Rudler, on August 29, 30, and 31, were specially localized on the southern edge, so that they tended all the more to give it an elongated form on that more western cleft that was only in activity the first days of the eruption. No. 4, meanwhile, which I approached, ascending upon No. 3, gave forth frequent eruptions of hot lava cakes at regular intervals (about fifty per minute), accompanied by globes of yellowish vapour, and a noise similar to that which accompanies the globes of vapour from the locomotive when it commences to move.

By unanimous consent of all the studious inhabitants of Etna, the new craters have been called the Monti Silvestri, in honour of that well-known vulcanologist, the lamented Prof. Orazio Silvestri, who studied our volcano with so much fervour, registered so assiduously every slight disturbance, and described its paroxysms so well and with such originality, that his loss has been deeply felt by all men of science. GAETANO PLATANIA.

14, Via S. Giuseppe, Acireale,
September 7.

NOTES.

THE Harveian oration will be delivered by Dr. J. H. Bridges at the Royal College of Physicians on Tuesday, October 18, at four o'clock.

THE Medical Session in London was opened on Monday, and introductory addresses were delivered in some of the schools attached to hospitals. A particularly interesting and suggestive address was delivered at the Westminster Hospital by Dr. Mercier, who dealt with various aspects of the problems connected with crime, pauperism, and insanity. Sir John Lubbock addressed the students at St. Thomas's Hospital.

ON Friday last Sir George Murray Humphry, F.R.S., delivered an interesting address at the opening of the first session of the Queen's Faculty of Medicine in connection with Mason College, Birmingham. The union of the two institutions is likely to be of great service both to medicine and to pure science in the Midlands.

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[1] "South Italian Volcanoes," by Johnston-Lavis, Naples, 1891. "I Projettili Squarciati di Vulcano," by G. Platania. (Roma, 1891.)

A MARINE biological station has been established at Bergen, in Norway, the funds having been raised by private donations and by subscriptions from learned societies. It will be under the control of Dr. J. Brunchorst, and will supply ten places for Norwegian and foreign workers.

WE regret to learn that M. Henri Douliot, who had been commissioned by the French government with a botanical expedition to the western coast of Madagascar, has died there of fever.

DR. B. L. ROBINSON has been appointed Curator of the Herbarium of Harvard University, Cambridge, U.S.A., in succession to the late Prof. Serreno Watson.

MR. WALTER E. COLLINGE, late Assistant-Demonstrator in Zoology in St. Andrew's University, has been appointed to the vacant Demonstratorship in Zoology and Comparative Anatomy and Botany in Mason College, Birmingham.

A CIRCULAR appeal, dated September, 1892, and signed by Mr. E. C. Pickering, Director of the Observatory of Harvard College, has been issued, inviting the wealthy to consider the opportunity offered for a donor of 200,000 dollars "to have his name permanently attached to a refracting telescope, which, besides being the largest in the world, would be more favourably situated than almost any other, and would have a field of work comparatively new." The telescope in question would be placed in the station established by Harvard College Observatory, near Arequipa in Peru, at an altitude of more than eight thousand feet. "During a large part of the year," says Mr. Pickering, "the sky of Arequipa is nearly cloudless. A telescope station having an aperture of thirteen inches has been erected there, and has shown a remarkable degree of steadiness in the atmosphere. Night after night atmospheric conditions prevail which occur only at rare intervals, if ever, in Cambridge. Several of the diffraction rings surrounding the brighter stars are visible, close doubles in which the components are much less than a second apart are readily separated, and powers can be constantly employed which are so high as to be almost useless in Cambridge. In many researches the gain is as great as if the aperture of the instrument was doubled. Another important advantage of this station is that, as it is sixteen degrees south of the equator, the southern stars are all visible." The circular continues: "The planet Mars, when nearest the earth, is always far south. The study of the surface of this and of the other planets is greatly impeded by the unsteadiness of the air at most of the existing observatories. Even under the most favourable circumstances startling discoveries—relating, for example, to the existence of inhabitants in the planets—are not to be expected. Still, it is believed that in no other way are we so likely to add to our knowledge of planetary detail as by the plan here proposed." We venture to hope that the wealthy donor for whom Harvard is looking will soon be found.

BARON LÉON DE LENVAL, of Nice, offers a prize of 3,000 francs to the inventor of the best application of the principles of the microphone in the construction of a portable apparatus for the improvement of hearing in deaf persons. Instruments for competition should be sent to Prof. Adam Politzer, or Prof. Victor von Lang, Vienna, before December 31, 1892. The prize will be awarded at the Fifth International Otological Congress at Florence in September, 1893. If no instrument is judged worthy of the prize, the jury reserve the right of announcing another competition, unless Baron Lenval decides to dispose of the prize otherwise. The following are the members of the jury:—Prof. Adam Politzer (President), and Prof. Victor v. Lang, Vienna; Dr. Benni, Warsaw; Dr. Gellé, Paris; Prof. Urban Pritchard, London; Prof. St. John Roosa, New York; Prof. Grazzi, Florence.

THE weather during the past week has been much disturbed by several depressions, which have caused heavy rainfalls over the whole of the kingdom, with hail and thunderstorms in many places. On the morning of September 30 the amount of rain measured on the south coast was an inch and a half, or about half the average for the month; and on the west coast, especially at Liverpool, much damage has been done by floods, occasioned by the excessive amount of rain. Temperature has been low for the season, the daily maxima rarely exceeding 60° in any part of the country, while in the north and west the readings have been much lower; frost has been recorded in the shade in the east of London, and the nights have been very cold generally. For several days a cyclonic area was situated over the United Kingdom, and strong winds were experienced on some coasts; a temporary improvement, however, occurred on Tuesday, although conditions remained very unstable. The *Weekly Weather Report* of the 1st inst. shows that the rainfall was in excess everywhere. In the south-west of England it amounted to 1·2 inch; but there was still a deficiency of 7½ inches since the beginning of the year. The temperature was below its mean value in all districts except the south of England and the Channel Islands, the deficiency being greatest in Scotland and Ireland.

SOME results of seven years' meteorological observations on the Pic du Midi, at a height of about 9500 feet, have been recently published by M. Klengel. The annual mean temperature is −2.°2 C. The annual variation, 14.°3, is only one degree less than at Tarbes on the plain, and is about that of the Sonnblick (which is some 800 feet higher than the Pic). April is abnormally cold (− 6·°2); and this is attributed to the fact that the Pic stands in Van Bebber's fifth depression-path, which is most frequented in that month. While Pipis Peak represents the extreme continental type of high mountain climates, and Etna the oceanic type, in nearly the same latitude, the Sonnblick and the Pic du Midi represent transition types. The maximum zone of precipitation on the Pic lies at about 7700 to 8000 feet; above this there is marked diminution. The results in general show that even at a height of nearly two miles the distribution of land and water on the earth's surface has a considerable influence on climate.

A SHOCK of earthquake, lasting from three to five seconds, was felt at Huelva, between twelve and one o'clock on the morning of September 29. According to a Reuter telegram, three shocks were noticed, the first being weaker than the succeeding disturbances. The direction of the seismic wave was taken from north to south, and the subterranean rumblings were heard very distinctly over a large area. The inhabitants were greatly terrified, but nobody was injured. Many windows were smashed, but beyond this the damage was insignificant.

A CURIOUS instance of globular lightning is referred to in the *Meteorologische Zeitschrift* for September 1892. On August 7, during a thunderstorm at Altenmarkt, near Fürstenfeld, while the priest was administering the sacrament, the church was struck by lightning, followed by a loud explosion. A panic immediately ensued, and the congregation rushed out, notwithstanding the assurances of the priest that there was no danger. There was nothing to show how the lightning entered the church, but it is supposed it was by the conductor leading from the steeple. It is said to have been a large globe, tapering towards the upper part, and after the explosion it left a strong sulphurous smell. The explosion was very loud and shook the building.

THE last number of the *Berichte der Deutschen Botanischen Gesellschaft* contains an interim report on the progress of the negotiations concerning the nomenclature of genera, started by a committee of botanists at Berlin to supplement the decisions of the International Botanical Congress held at Paris in 1867. The proposals submitted last April to the consideration of 329 German and Austrian and 377 foreign botanists were the following :—(1) The year 1752 to be taken as the initial date for priority in names of genera, and 1753 for the names of species. (2) Nomina nuda and semi-nuda to be rejected. Drawings and dried specimens without diagnoses to establish no claim to priority of a genus. (3) Similarly sounding generic names to be retained, even if differing only in the ending or by a single letter. (4) The names of the subsequent great or well-known genera to be preserved, even if they ought to be rejected by the strict rules of priority, especially in cases where no change in the names used up to the present can be proved. 360 replies had been received up to the time of the report, amongst them being 157 from Germany, 63 from Austria, and 19 from Great Britain and Ireland. The great majority expressed approval, at least, of the first three proposals. The botanical authorities of the British Museum favour the suggestions, those at Kew are against them.

M. G. TROUVÉ has built a luminous fountain for Mme. Patti, at her residence at Craig-y-Nos, an account of which appears in No. 11 of the *Comptes rendus*. "The weight of this fountain is about 10,000 kgr., and the basin measures 6 m. in diameter. The illuminating power is represented by four incandescent lamps of 110 volts, each consuming 6 amperes. Thus the total electric energy amounts to 2640 watts ; this gives, at three watts per candle, a light intensity of over 800 candles. The lamps are centred at the focus of four parabolic reflectors grouped under the glass chambers whence the water springs. As in the chamber fountains, the metallic ajutages, which would have cast shadows, are eliminated. The water which falls from the upper to the lower basin is utilised to drive a small bucket-wheel, which governs the rotation of two superposed discs, concentric or otherwise, made of coloured glasses, which turn in the same or in the opposite sense, with equal or unequal velocities as required, between the reflectors and the glass. This combination of two discs with opposite rotations renders possible a variation in the play of colours of the liquid sheaves, which succeed each other with the unexpectedness of the kaleidoscope. The motive power can be chosen at pleasure. It may be hydraulic, electric, or by clockwork, of forms and dimensions in keeping with the character of the decoration. These fountains need neither expenses of installation nor costs of maintenance, and their price depends solely upon their artistic perfection and their importance. Hitherto the construction of luminous fountains has only been hindered by the impossibility of sufficiently illuminating the jets. To-day the problem is reversed. Since the light can be projected without sensible loss to great heights, the only difficulty will be to give a sufficiently high pressure to the water."

THE Manchester Field Naturalists' and Archæologists' Society closed the out-door session by a visit to Buxton on Saturday, September 24. The field meetings were well attended during the session, and the introduction of an itinerary for each excursion, detailing the natural history features of the district, was of service. The president, Mr. Charles Bailey, F.L.S., usually gave the address upon the botanical specimens observed. At Buxton, the chairman of the directors of the Winter Gardens conducted the party through the grounds, and undertook to convey to his colleagues the desire of the Society that the county ferns and native phanerogams, so far as they will live at the altitude of the gardens, which are a thousand feet above the sea, should be introduced.

AT a meeting of the Norfolk and Norwich Naturalists' Society, held in the Norwich Museum on September 27, Mr. Southwell exhibited, by permission of Mr. T. Ground, of Moseley, Birmingham, a Siberian pectoral sandpiper (*Tringa acuminata*), killed at Yarmouth by that gentleman on August 29, which he believed to be the first European example of this bird hitherto recorded.

THE administrative report of the Marine Survey of India for the official year 1891-92 has been published. Dr. A. Alcock, Surgeon-Naturalist to the Survey, shows that in his department the year has been by no means unproductive. He expresses his belief, however, that the results would be tenfold greater, both from the scientific and from the economic points of view, if, in the survey of inhabited coasts, the naturalist could follow the ship from camp to camp ashore, visiting it at short, convenient intervals for medical purposes, but otherwise devoting all his time to systematic exploration of the grounds worked by the fishermen—grounds of marvellous richness still quite unexplored and unappreciated.

AMONG the animals Dr. Alcock has specially observed is the red ocypode crab, which swarms on all the sandy shores of India. The bigger of its two chelæ, or nippers, bears across the "palm" a long finely-toothed ridge, and on one of the basal joints of the "arm," against which the "palm" can be tightly closed, there is a second similar ridge. When the "palm" is so folded against the base of the "arm," the first ridge can be worked across the second, like a bow across a fiddle, only in this case the bow is several times larger than the fiddle. The remarkable resemblance of the whole arrangement to the stridulating apparatus of many insects led Prof. Wood Mason some time ago to infer a similarity of function ; and he asked Dr. Alcock to observe the crabs, and to listen for the sounds which he supposed them to be capable of making. Dr. Alcock is now able to give facts which establish the truth of Prof. Wood Mason's idea. The sounds can be heard, and their effects seen, if one crab, which may be called the intruder, is forced into the burrow of another, which may be called the rightful owner. The intruder shows the strongest reluctance to enter, and will take all the risks of open flight rather than do so, and when forced in he keeps as near the mouth of the burrow as possible. When the rightful owner discovers the intruder he utters a few broken tones of remonstrance, on hearing which the intruder, if permitted, will at once leave the burrow. If the intruder be prevented from making his escape, the low and broken tones of the rightful owner gradually rise in loudness and shrillness and frequency until they become a continuous low-pitched whirr, or high-pitched growl, the burrow acting as a resonator. Dr. Alcock concludes that the use of the stridulating organ appears to be that a crab, when it has entered its burrow, may be able, by the utterance of warning notes, to prevent other crabs from crowding in on top of it.

DR. FRITZ NOETLING has been investigating the amber and jade mines of Upper Burma, and sets forth the results of his inquiry in the new number of the Records of the Geological Survey of India. The strata in which the amber is found belong to the tertiary formation, probably to the lower miocene. Dr. Noetling does not think that Burmese amber would be received with much favour in Western markets—first, because it does not include the milky-white, clouded variety which has for a long time been so much appreciated in Europe ; second, because of its fluorescence. This is the bluish tinge which appears when the amber is looked at under a certain angle—a tinge which is sometimes so strong that fine yellow pieces seem to be of an ugly greenish colour.

Dr. Noetling has formed a higher idea of the value of the jade mines of Burma. There are two different groups of jade mines—pit and quarry mines. The former are situated along the bank of the Uru river, beginning at about Sankha village, and extending for a distance of about forty miles farther down. The quarry mines near Tammaw village are situated eight miles west of the Sankha village, on the top of a plateau rising to about 1,600 feet above the level of the Uru river. The Tammaw mines afford the best opportunity for the study of the geological conditions under which the jade is found. It there forms a vein of considerable thickness in an igneous rock of blackish-green colour. The jade is a purely white crypto-crystalline mineral, much resembling the finest marble, containing here and there green specks of various sizes, which form the jade proper. The jade vein is separated from the black rock by a band of a soft and highly decomposed argillaceous mineral. The strike of the vein is approximately north to south, and the dip at about an angle of 20°, varying considerably towards east. There are at least 500 men engaged every season in working the quarry mines at Tammaw. The mining operations are carried on in the rudest fashion. No blasting powder being available, the rock is heated by large fires, and, having cooled down, is broken in pieces by means of enormous iron hammers. The operations in the pit mines are less difficult. The miner simply digs a pit and selects boulders of jade from the stuff dug out. Good pieces of jade are sometimes found in the laterite, which forms beds of varying thickness along the Uru. These pieces have superficially undergone a certain discolouring in such a way that the original green or white is changed under the influence of the hydrated oxide of iron into a dark red colour. Specimens of this kind are generally known as "red jade." Dr. Noetling says that the jade mines form a most valuable property. He has no doubt that besides the Tammaw jade vein others will be discovered. We know now that jade is intimately associated with a dark igneous rock (trap), and Burma abounds in rocks of this kind.

Mr. Otis T. Mason contributes to the latest report of the U. S. National Museum (for 1890) an interesting study of the ulu, or woman's knife, of the Eskimo. The ulu is found throughout the Eskimo region, from Labrador to Kadiak, and consists of a blade and a handle or grip with or without some form of lashing. The blade is either a thin piece of slate ground to an edge, a bit of cherty or flinty rock chipped to an edge, a scrap of steel or iron from wrecks of whaling vessels, or good blades made and sold to the Eskimo by traders who visit their country. The handle varies greatly in material, form, and finish. In form alone the specimens from each typical area are unique. Some of the ulus in the U. S. National Museum are as coarse as savagery could make them; others are very beautiful. The same locality furnishes both and intervening kinds, but some areas supply only coarse work. The problem has to some extent been complicated by white influence. The ulu has survived in civilized countries under two well-known forms—the saddler's knife and the kitchen knife. The saddler thus perpetuates, for cutting leather, an implement designed to be used with skins from which the hair has not been removed. The kitchen chopper is the woman's knife deprived of nearly all its ancient and primitive offices, consigned to a single one, which it scarcely had at the beginning. The saddler's knife may be seen in the hands of leather-cutters represented on Egyptian monuments. An excellent series of illustrations, grouped in accordance with the regions from which the specimens come, adds greatly to the interest and value of Mr. Mason's paper.

It is a common experience in daily life that milk has in itself little or no tendency to putrefaction, and that it may even to some extent preserve certain substances that are readily decomposed, such as meat. This property has lately been investigated by Herr Winternitz, in Strasburg. Of the three chief constituents of milk, viz., casein, fat, and milk sugar, the first proved as liable to putrefaction as the meat or pancreas extract experimented with; the fat, too, had no preservative influence. Milk-sugar, on the other hand, in accordance with what is known regarding the power of carbohydrates to retard putrefaction, acted as strongly as cane-sugar. Nothing definite was ascertained as to the nature of this action. It was proved, however, to take place in the alimentary canal as well as outside of the system.

Rats at Milnthorpe, Westmoreland, seem to have found a fresh outlet for their predatory impulses. Mr. G. Reade, in a letter quoted in the new number of the *Zoologist*, says that the ripe gooseberries in his garden there were disappearing very rapidly this year, and he supposed that the mischief was being done by blackbirds. However, his attention was called to a large rat taking the berries off with his mouth and dropping them to other rats below. Presently another climbed the tree and helped to gather the berries. In a little time both came down, each with a berry in its mouth, having a curious appearance. Mr. Reade saw the performance several times repeated. Then he placed a wire cage under the tree, and in three days caught nine of the intruders.

The electric light seems to have an extraordinary attraction for lepidoptera. On August 19, as he records in the new number of the *Entomologist*, Mr. D. S. Stewart had an opportunity of noting this fact. At the Eddystone lighthouse exhibited in the Botanic Gardens at Old Trafford (the same lighthouse as was shown at the Naval Exhibition), he saw great numbers of moths. Before ascending, he says, one could see them from below, flashing in and out of the rays in hundreds; and when the top was reached, the place was found to be full of them—"some, apparently dazzled by the light, frantically flying in all directions, buzzing and banging in your face, up your sleeves, down your neck, everywhere. In every sheltered niche and cranny four or five were to be seen together, and especially was this so on the staircase, which was strewn with their partially cremated remains, the result of their all too successful attempts at self-immolation."

A valuable paper on the breeding-habits, eggs, and young of certain snakes, by O. P. Hay, is printed in the latest volume (xv.) of the Proceedings of the U.S. National Museum, and has also been issued separately. Mr. Hay notes that, although serpents have made a deep impression on the human mind, very little accurate information has been accumulated concerning some of their habits. His paper embodies the results of a good deal of careful personal observation.

The Nova Scotian Institute of Natural Science has changed its name to the Nova Scotian Institute of Science, and has secured an Act of Incorporation. It has now begun the second series of its "Proceedings and Transactions," the first part of vol. i. having just been issued. Among the papers in this part are "Notes on the surface geology of South-Western Nova Scotia," by Prof. L. W. Bailey; "Steam boiler tests as a means of determining the calorific value of fuels," by D. W. Robb; "Analyses of Nova Scotia coals and other minerals," by E. Gilpin, jun.; "The Magdalene Islands," by the Rev. Dr. G. Paterson; "Notes for a Flora of Nova Scotia," Part I by Prof. G. Lawson.

Messrs. Williams and Norgate are about to publish a work entitled the "Cry of the Children," by "Free Lance." It deals with education in a wide sense, but more especially it advocates the necessity of a scientific training.

Part I. of a new work on practical physics, by Prof. W. F. Barrett, of the Royal College of Science for Ireland, will shortly be published by Messrs. Percival and Co. It will treat of physical processes and measurements, and the properties of matter.

The University Correspondence College has issued its calendar for 1892-93. The Principal, in his report, shows that the college has been in many ways remarkably successful.

The calendar of the Imperial University of Japan for 1891-92 affords ample evidence that the authorities of this important institution are doing everything in their power to secure that it shall meet the needs of the present age. We may note that in the college of science the following seven courses, each of which extends over three years, have been established: Mathematics, astronomy, physics, chemistry, zoology, botany, and geology.

In the last sentence of the fourth paragraph of Lord Kelvin's article on "Generalization of Mercator's Projection Performed by aid of Electrical Instruments" (Nature, September 22, p. 491), for "three" read "two." For corrections in paragraph 3, and in the last paragraph but one, see article "To Draw a Mercator Chart, &c.," in the present issue.

An interesting new compound, the silver salt of the little known imide of sulphuric acid, SO_2NAg, has been obtained by Dr. Wilhelm Traube, in the laboratory of the University of Berlin, and an account of its properties, together with a considerable amount of fresh information concerning both the amide and imide of sulphuric acid, are contributed by him to the current number of the *Berichte*. Regnault long ago obtained a solid substance, which he regarded as a mixture of the neutral amide of sulphuric acid $SO_2(NH_2)_2$ with ammonium chloride, by leading ammonia gas into a solution of sulphuryl chloride SO_2Cl_2 in ethylene chloride.

$$SO_2Cl_2 + 4NH_3 = SO_2(NH_2)_2 + 2NH_4Cl.$$

The separation of the two substances, however, was but imperfectly effected, so that our knowledge of the amide itself is very vague. Dr. Traube now shows that the amide may be isolated without difficulty by the following process. The sulphuryl chloride is dissolved in fifteen times its volume of chloroform, which exerts no chemical action upon it, and dry ammonia gas is led through the liquid until the latter becomes saturated. The products of the reaction separate during the passage of the gas in the form of a white solid. The whole product is then agitated with water until the precipitate dissolves, the aqueous solution is separated from the chloroform and afterwards boiled in contact with oxide of lead or silver until all chlorine is removed from it. Upon filtering and evaporating the resulting liquid a syrup is eventually obtained, which only crystallizes with difficulty and would appear to consist of neutral sulphamide $So_2(NH_2)_2$. It is an extremely deliquescent substance whose solution in water and dilute acids is not precipitated by salts of barium or by platinic chloride. Only after prolonged boiling with hydrochloric acid does decomposition occur with the gradual deposition of barium sulphate. The effect of boiling in the presence of acids would appear to be its conversion into ammonium sulphate. Sulphamide possesses the power of combining with the oxides of mercury, lead, and silver, to form white solid substances. Thus if mercuric nitrate, lead acetate, or ammoniacal silver nitrate are added to the aqueous solution of the amide these white solid compounds are precipitated. The mercury compound is insoluble in dilute nitric acid, while the lead and silver compounds are readily soluble, forming solutions which are perfectly indifferent to barium salts. It was from the compound containing silver that the interesting silver imide was obtained. Upon heating the silver compound to the temperature of 170°–180° until ammonia ceases to be evolved, and extracting the residue with hot water feebly acidified with nitric acid, the new compound SO_2NAg separates upon cooling in long acicular crystals. Analyses have proved its composition to be that stated, and from its reactions it must be regarded as being the silver salt of sulphimide SO_2NH. The crystals are only soluble with difficulty in cold water, but more freely in hot water and readily in dilute nitric acid. The solution is not precipitated by barium nitrate. Even after removal of the silver by means of hydrochloric acid barium salts yield no precipitate; indeed, it requires long boiling with concentrated acid to effect any precipitation. It would appear that the solution left after removal of the silver contains sulphimide itself, and Dr. Traube is continuing his experiments with a view to the isolation of the latter compound.

The additions to the Zoological Society's Gardens during the past week include a Grivet Monkey (*Cercopithecus griseoviridis* ♀) from South Africa, presented by Mr. W. Howard; a —— Lark (*Alauda cœlivox*) from China, presented by Mr. Gervase F. Mathew, R.N., F.Z.S.; two Common Kestrels (*Tinnunculus alaudarius*), British, presented by Mr. L. Bergasse: a Herring Gull (*Larus argentatus*), British, presented by Mr. H. H. Johnson; a Tuatera Lizard (*Sphenodon punctatus*), from New Zealand, presented by Capt. G. Eriksen; four Smooth Snakes (*Coronella lævis*) British, presented by Mr. E. Penton, F.Z.S.; six American Green Frogs (*Rana halecina*), four Noisy Frogs (*Rana clamata*), from Canada, purchased; one Concave-casqued Hornbill (*Dichoceros bicornis*), from India, received in exchange; three Wild Swine (*Sus scrofa*) born in the Gardens.

OUR ASTRONOMICAL COLUMN.

Comet Brooks (August 27, 1892).—*Astronomische Nachrichten*, No. 3119, contains the elements and ephemeris of Brooks's comet calculated by F. Ristenpert, assuming an elliptical orbit and the unit of brightness on August 31·5 as the unit of Br.:—

Elements.

T = 1892 Dec. 28·2870 M.T. Berlin.

$$\omega = 252^\circ\ 4'\ 23''{\cdot}0$$
$$\Omega = 264\ 34\ 45{\cdot}3$$
$$i = 24\ 43\ 17{\cdot}1$$
$$\log. q = 9{\cdot}994136$$

Ephemeris for 12h. Berlin M.T.

1892.	R.A. app.			Decl. app.		Log. r.	Log. Δ.	Br.
	h.	m.	s.	°	′			
Oct 6	7	45	22	+24	47·5			
7		48	30	24	26·9	0·2204	0·1763	3·71
8		51	40	24	5·6			
9		54	51	23	43·6			
10	7	58	4	23	20.9			
11	8	1	18	22	57·4	0·2077	0·1542	4·35
12	8	4	34	22	33·3			

This comet on the 11th inst. will be found situated in the constellation of Cancer. It will lie very nearly on a line joining the stars κ Gemini and δ Cancri, being about a third of the distance nearer the former than the latter.

Comet 1892 II. (March 18).—The following ephemeris for Denning's comet we take from the *Astronomische Nachrichten*, No. 3118:—

12 *Berlin Mean Time.*

1892.	R.A. app.			Decl. app.		Log r.	Log Δ.	Br.
	h.	m.	s.	°	′			
Oct. 6	6	23	9	+11	54·0			
8		22	0	11	6·3	0·4250	0·3604	0·64
10		20	43	10	17·9			
12		19	19	9	28·8	0·4300	0·3539	0·65
14		17	48	8	39·1			
16		16	9	7	48·9	0·4349	0·3478	0·65
18		14	23	6	58·4			
20	6	12	29	6	7·6	0·4398	0·3423	0·65